

New records of chewing lice (Phthiraptera: Amblycera, Ischnocera) from the black-faced spoonbill (*Platalea minor*)

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Abstract

Three species of chewing lice—*Eucolpocephalum femorale* (Piaget, 1880) (Amblycera: Menoponidae), *Ibidoecus plataleae* (Denny, 1842) (Ischnocera: Philopteridae) and *Ardeicola plataleae* (Linnaeus, 1758) (Ischnocera: Philopteridae)—are reported from the black-faced spoonbill (*Platalea minor* Temminck & Schlegel, 1849) in Japan. These three louse species are new records for this host. The black-faced spoonbill is classified as a “Critically Endangered” species in the *IUCN Red List*; although its species of lice are known to infest other species of spoonbills, these lice are endangered at the population level.

Key words: chewing lice, *Eucolpocephalum femorale*, *Ibidoecus plataleae*, *Ardeicola plataleae*, black-faced spoonbill, *Platalea minor*, new records, Japan

Introduction

The black-faced spoonbill (*Platalea minor* Temminck & Schlegel, 1849) belongs to the family Threskiornithidae of the order Pelecaniformes. This bird species is endemic to eastern Asia and classified as ‘Critically Endangered’ in the *IUCN Red list* (Baillie & Groombridge 1996). Because of its rarity, there are few records of ectoparasites from black-faced spoonbills, and lice have not previously been recorded to date. In this paper, we report three species of chewing lice as new host-louse records for the black-faced spoonbill.

Materials and methods

Louse samples were collected from a dead black-faced spoonbill, estimated to be under one year old (H. Koike 2008, pers. comm.) found on 16 February 2008 in Aira City, Kagoshima Prefecture, Kyushu, Japan, by Hiroko Koike. The lice were killed and preserved in 99% ethanol. They were subsequently treated in 20% KOH for one hour at 60°C, and dehydrated with an alcohol series before being slide-mounted in Euparal. Some specimens were stained with acid fuchsin. All specimens are deposited in the Hokkaido University Insect Collection (SEHU). Slide-mounted specimens were photographed using AxioCam ERc 5s attached to Zeiss Axiophoto microscope (Carl ZeissAG, Jena, Germany). The final images were prepared by using Photoshop CC2018 and Illustrator CC2018 (Adobe Inc., San Jose, California, U.S.A.).

Results

Suborder Amblycera Kellogg, 1896

Family Menoponidae Mjöberg, 1910

Eucolpocephalum femorale (Piaget, 1880)

(Figs 1c,d; 2c)

Specimens examined. 1♂ (SEHU #74901, #94203) and 2♀ (SEHU #94204, #94208) each mounted on a slide; 2♂ and 8♀ stored in alcohol (SEHU).

Diagnosis. The monotypic genus *Eucolpocephalum* can be diagnosed by the following combination of characters: Head short and broad; preantennal region with 3 long and 3 short setae on each side; temple broad transversely, with 6–7 long and 2–4 short setae. Male genitalia: parameres elongated and curved inwardly, with complex median sclerites as in Fig. 2c.

Remarks. The identification of *E. femorale* was based on the descriptions of Piaget (1880) for general morphology, Bedford (1930: 162, fig. 6) for head morphology, and Tuff (1966: 380) for chaetotaxy and the morphology of male genitalia. This species has been recorded from four spoonbill species and one ibis, as follows: *Platalea leucorodia* Linnaeus, 1758, *Platalea ajaja* (Linnaeus, 1758), *Platalea alba* Scopoli, 1786, *Platalea regia* Gould, 1838 and *Phimosus infuscatus berlepschi* Hellmayr, 1903, the bare-faced ibis (Price *et al.* 2003: 108). Ledger (1971: 98) suggested that the record of a male and female pair of *E. femorale* from the bare-faced ibis in Tuff (1966: 382) was probably erroneous and in need of confirmation. Our sample of *E. femorale* from *Platalea minor* is the first record from this host.

Suborder Ischnocera Kellogg, 1896

Family Philopteridae Burmeister, 1838

Ibidoecus plataleae (Denny, 1842)

(Figs 1a,b; 2a)

Specimens examined. 1♂ (SEHU #94201) and 1♀ (SEHU #94202) mounted on a slide; 2♂ and 5♀ stored in alcohol (SEHU).

Diagnosis. *Ibidoecus plataleae* can be distinguished from its congeners by the following combination of characters: Head: anterior dorsal plates and preantennal region short. Thorax: 17 posterodorsal marginal setae on each side in males, 19 in females, extended to midline of divided pteronotum. Abdomen: male tergite XI heavily sclerotized and semicircular in shape (Fig. 2a); female with inner margin of each lateral sternal plates on segment VII joined to the central portion of the genital plate. Male genitalia as in Fig. 2a; female genitalia as in Fig. 1b.

Remarks. The identification of *I. plataleae* was based on the descriptions of Martín-Mateo (1994: 114) and Tandan (1958: 406) for general morphology, and the figures of male and female genitalia in Tandan (1958: 407, figs 23, 26). *Ibidoecus plataleae* has been recorded from *Platalea leucorodia* and *P. regia* (Price *et al.* 2003: 192). Our sample of *I. plataleae* from *P. minor* is the first record from this host.

Ardeicola plataleae (Linnaeus, 1758)

(Figs 1e,f; 2b)

Specimens examined. 1♂ (SEHU #94207) and 2♀ (SEHU #94205, #94206) each mounted on a slide; 1♀ stored in alcohol (SEHU).

Diagnosis. *Ardeicola plataleae* can be distinguished from its congeners by the following combination of characters: Head: first segment of male antennae thickened and elongated as in Fig. 1e. Abdomen: in females, abdominal segment IV as long as segment V. Male genitalia: parameres long and sinuated, mesosome and other sclerites as in Fig. 2b.

Remarks. The identification of *A. plataleae* was based on the descriptions of Büttiker (1967: 197), Hajela & Tandan (1970: 325) and Martín-Mateo (1994: 110) for general morphology, and the figures of Martín-Mateo (1994: 111, figs 1e,f) for the genitalia of both sexes. *Ardeicola plataleae* has been recorded from *Platalea leucorodia* and *P. regia* (Price *et al.* 2003: 149). Our sample of *A. plataleae* from *P. minor* is the first record from this host.

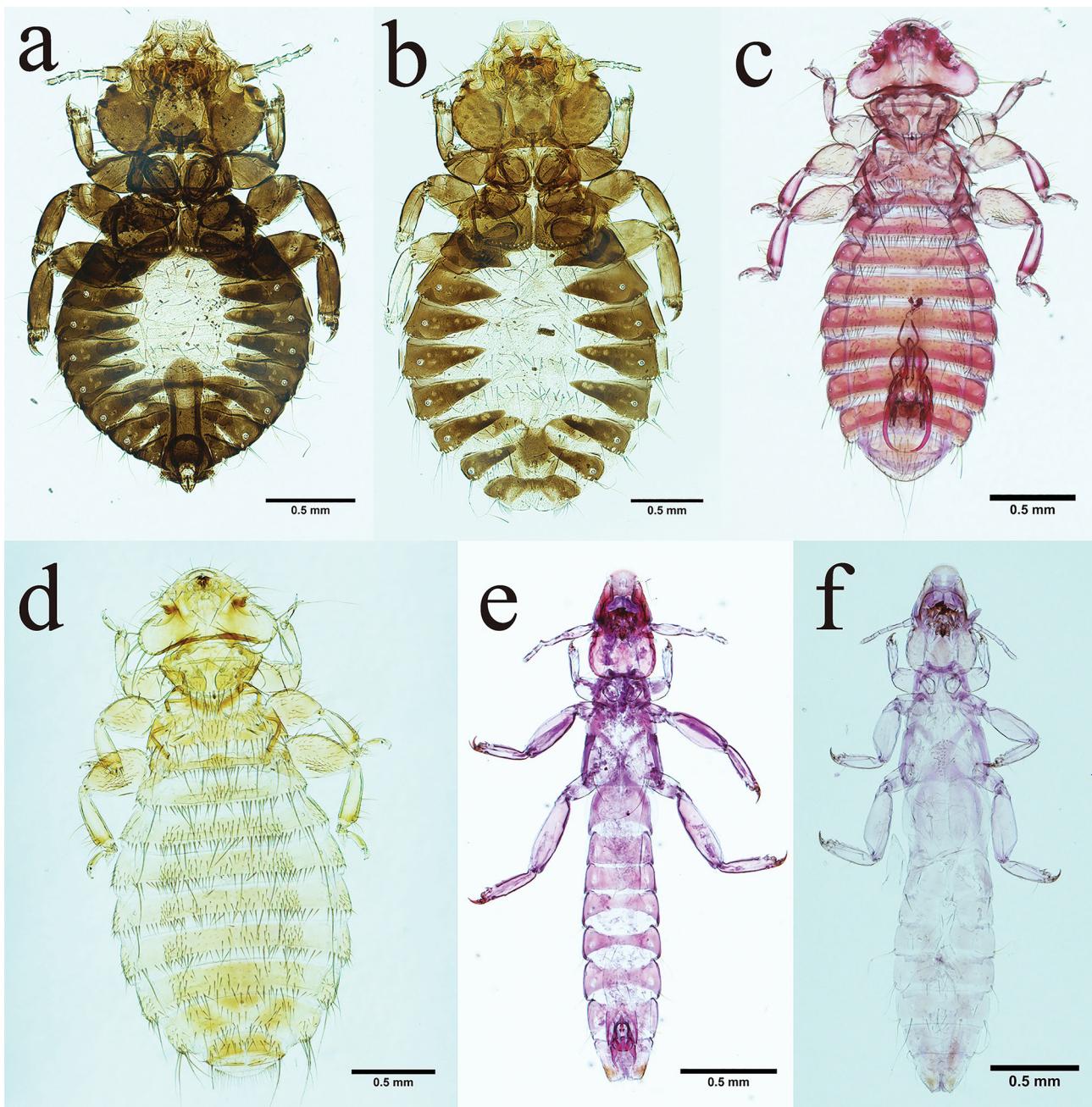


FIGURE 1. Habitus: **a**, male *Ibidoecus plataleae*. **b**, female *I. plataleae*. **c**, male *Eucolpocephalum femorale*. **d**, female *E. femorale*. **e**, male *Ardeicola plataleae*. **f**, female *A. plataleae*.

Discussion

As a consequence of spending their entire life cycle on the host body, many species of parasitic lice are host-specific (Johnson & Clayton 2003). The three species of lice recorded in this paper from *P. minor* are known from other species of the genus *Platalea* (see Price *et al.* 2003: 301) and thus are not strictly host-specific. However, genetic differentiation within a morpho-species is also frequent among parasitic lice (Johnson *et al.* 2002). Therefore, at population level, the louse species parasitizing the black-faced spoonbill should perhaps also be considered critically endangered, and under the risk of coextinction with their host (Koh *et al.* 2004). A genetic study of all the species of lice parasitic on birds of the genus *Platalea* is necessary to reveal the genetic structure among spoonbill lice.



FIGURE 2. Male genitalia: **a**, *Ibidoecus plataleae*. **b**, *Ardeicola plataleae*. **c**, *Eucolpocephalum femorale*.

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